

Applicant: Hans-Peter Manner
Application No.: 10/616,894

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (currently amended) Injection molding nozzle (1) for plastic comprising:
~~at least two outlet openings (2) in an end region thereof of the injection molding nozzle directed toward different sides of the nozzle (1), for discharging to different sprue openings, each of the outlet openings (2) including a needle closure with a closure needle (5) adjustable in a direction of one of the outlet openings (2); a common drive element for displacing the closure needles (5) in a closing direction, the drive element being a displacement member movable between ends of the closure needles (5), and the drive element including a cross section that is at least one of a cone (9), conical, tapered, a cam disk and an eccentric disk (10); and a feed channel (4) for transporting plastic to the outlet openings (2) and with a feed channel (4) for the plastic to the outlet openings (2), wherein the outlet openings (2) directed toward different sides respectively have a needle closure with a closure needle (5) adjustable in a direction of the outlet opening (2), and a drive for displacing the closure needles (5) into a closing position.~~
2. (original) Injection molding nozzle according to claim 1, wherein, the feed channel (4) comprises a separate feed channel for the plastic for each of the lateral outlet openings (2) provided with a closure needle (5), and the feed channels (4) are arranged outside a middle area of the injection molding nozzle (1).
3. (original) Needle closure nozzle according to claim 1, wherein the feed

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channels (4) for the plastic enter the outlet openings (2) before mouths (6) thereof, near ends of the individual closure needles (5).

4. (original) Injection molding nozzle according to claim 1, wherein the outlet openings (2) and the closure needles (5) displaceable into them are arranged approximately radially and generally in one plane extending perpendicularly to a longitudinal mid-axis of the injection molding nozzle (1).

5. (original) Injection molding nozzle according to claim 1, wherein the closure needles (5) of the outlet openings (2) have a common drive for displacement into the closing position.

6. (original) Injection molding nozzle according to claim 1, wherein the closure needles (5), in a closing direction, have a cross section enlargement (8) or a shoulder located before the feed channel (4) entry for the plastic as an action surface for injection molding pressure for opening the closure needle (5), and the drive acting in the closing direction can be disconnected and/or overcome during opening of the respective closure needle (5).

7. (original) Injection molding nozzle according to claim 6, wherein compression springs and/or displacement means engaging mechanically on the closure needles (5) are provided for displacing the closure needles (5) into the closing position and are located at ends remote from the outlet opening.

8. (canceled)

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9. (currently amended) Injection molding nozzle according to claim [[8]] 1, wherein for displacing a conically shaped or cone (9) displacement member, a push/pull rod (11) displaceable in an axial direction is located centrally within the injection molding nozzle (1), or for rotating a cam disk or eccentric disk (10) a rotary rod (13) is provided centrally in the injection molding nozzle (1).
10. (original) Injection molding nozzle according to claim 1, wherein a drive element engaging the closure needles (5) is coupled and connected with the closure needles such that one movement serves for closing and an opposite movement serves for pulling back the closure needles (5) into an opening position.
11. (original) Injection molding nozzle according to claim 1, further comprising a housing (14) that is divided perpendicularly to the feed channels (4) for the plastic and has a thermal compensation gap (15) in a region of the division.
12. (original) Injection molding nozzle according to claim 11, wherein the thermal compensation gap (15) on the housing (14) of the injection molding nozzle is sealed by an overlap at least in a region of the feed channels (4) for the plastic.
13. (original) Injection molding nozzle according to claim 12, wherein the overlap serving for sealing the thermal compensation gap (15) in the region of the feed channels (4) is formed by a sliding sleeves (16) or a respective sliding sleeve (16) arranged on an inside or outside of the feed channel (4).
14. (original) Injection molding nozzle according to claim 1, wherein a rod (11, 13) arranged in a center of the nozzle housing (14) for a common drive of the closure

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needles (5) is provided or coupled with a rotary or axial drive.

15. (original) Injection molding nozzle according to claim 1, wherein the outlet openings (2) and the closure needles (5) displaceable therein are arranged in bushings inserted into a housing (14) of the injection molding nozzle (1).

16. (currently amended) Injection molding nozzle according to claim 1, further comprising wherein the closure needles (5) can respectively be axially introduced from outside into a mounting position and fixed by at least one [[a]] retaining cap (18) which can be screwed to removably threadably secured to an outside of the injection molding nozzle and which retains at least one of the closure needles (5), the retaining cap (18) including includes a mouth (6) of the outlet opening (2).

17. (currently amended) Injection molding nozzle according to claim 1, further comprising wherein the closure needles (5) can be pushed in from an inner side into a bushing (17) which receives the closure needles (5) in receiving them before insertion into the nozzle body, and at least one of the closure needles includes and fixed in an axial direction by a shoulder or a cross section enlargement which limits movement of the at least one of the closure needles in an axial direction, such that displacement movement is limited to a closing direction and the closure needle (5) is delimited in the radial direction.

18. (original) Injection molding nozzle according to claim 1, wherein more than two outlet openings with closure needles (5) displaceable therein are arranged on one nozzle housing (14), and are movable in the closing direction with the same drive element.

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19. (New) Injection molding nozzle (1) for plastic comprising:
 - first and second openings (2) in an end region of the injection molding nozzle directed toward different sides of the nozzle (1), for discharging to different sprue openings;
 - first and second closure needles (5), the first closure needle positioned in the first opening and the second closure needle positioned in the second opening;
 - a common drive element for displacing the first and second closure needles (5) in a closing direction, the drive element being a displacement member movable between ends of the closure needles (5) and slideably connected to an end of each of the first and second closure needles; and
 - a feed channel (4) for transporting plastic to the outlet openings (2).
- 20 (New) The injection molding nozzle according to claim 19, wherein a push/pull rod (11) is connected to the displacement member for actuating the displacement member.
21. (New) The injection molding nozzle according to claim 19, wherein a rotary rod (13) is connected to the displacement member for actuating the displacement member.
22. (New) Injection molding nozzle (1) for plastic comprising:
 - first and second openings (2) in an end region of the injection molding nozzle, for discharging to different sprue openings;
 - first and second closure needles (5), the first closure needle positioned in the first opening and the second closure needle positioned in the second opening;

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a common drive element for displacing the first and second closure needles (5) in a closing direction, the drive element being a displacement member movable between ends of the closure needles (5) and slideably connected to each of the first and second closure needles; and

a feed channel (4) for transporting plastic to the outlet openings (2).